Astec

Albumedix

Case Study

Astec were called in to help produce a design study when systems became out of date and obselete. The design study enabled the client to take the project to market for accurate, fully costed proposals. The migration upgrade proposed by Astec met all user requirements, providing a robust, reliable and scalable system designed to last.

Astec IT Solutions Ltd
Edric House
Towers Plaza
Wheelhouse Road
Rugeley
WS15 1UW
United Kingdom
+44 1543 888134

enquiries@astecsolutions.com
www.astecsolutions.com

Partner
Digital

SCADA Design Study & Implementation

Background

The biological solutions giant Novozymes, a company with 7,000 staff and revenues of £1.5 billion with headquarters in Denmark, separated its biopharma activities into the independent company, Albumedix in January 2016.

Albumedix develops a range of albumin-based products and technologies, exploring new opportunities and uses as bio therapeutics. The naturally occurring protein albumin is made by the liver, and is used as an ingredient in vaccines. Albumedix produces it through fermentation of baker's yeast at high quality, to eliminate the risk of contamination.

The company has 100 staff working at the Nottingham-based production site and R&D laboratories.

Project Requirements

In 2014, Astec Managing Director, Andy Tripp and Sales Manager Craig Hill were invited to the Nottingham site to discuss the replacement of the CAPP water supply automation system. The micro-controller was obsolete and the SCADA system was out of date, so Astec submitted a proposal for an initial migration upgrade.

Whilst this served as a foundation for the project, over the following months the team at Novozymes (now Albumedix) identified new requirements, increasing the scope of the project.

The water is used as part of the production process for the medical-grade enzyme products, which are worth more per kilo than gold, so in order to ensure no batches are lost, downtime had to be kept to a minimum. To leave no room for error, full Computer System Validation (CSV) would be necessary at every stage of the project. The client required complete technical clarity – knowing precisely how the system was going to work before solution implementation could start.

Design Study

It soon became clear the project was going to be technically demanding. The necessary level of technical expertise was not available in-house at Albumedix, so Astec were approached again a year later. The ultimate aim of the project was to plan, test and commission a modern, robust and reliable system. The primary output from the design study would be a document the client could take to market for fully costed, competitive proposals.

After a 'kick off' meeting to agree the deliverables, Astec began the design study in October 2015, completing within 2 months. Astec were then pleased to be awarded the upgrade contract in March 2016.
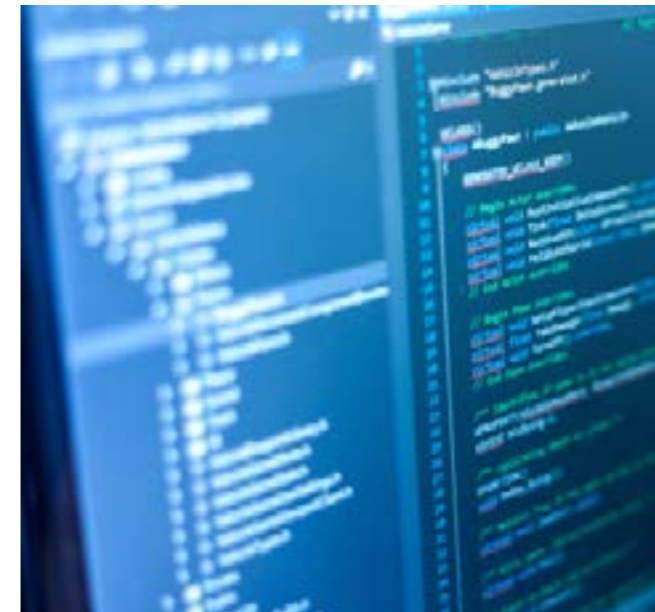
Upgrade & Delivery

A major technical challenge faced by Astec was learning the 'language' of the old redundant software. The 80s Boolean logic code needed manually interpreting before it could transposed into a format others could understand. The knowledge of the original software was held by a retired contractor, and the existing micro controller was believed to be the last of its type in operation in the world, with no upgrade path. A key requirement from the client was that the system would need to be built to an industry standard; fully supportable for 20 years, not just by Astec, but by their own engineers if required. With this in mind, Astec interpreted the software and ported it to an industry standard Siemens PLC (expanding an existing Siemens footprint on site).

Validated documentation procedures were then carried out, working in cooperation with the client to review test plans and protocols. Following the preparation of these, and an agreed design specification, architecture build and system configuration got underway and moved through internal testing. Finally, a rigorous Factory Acceptance Test was completed by the client to ensure the system replicated the exact functionality of the original.

Albumedix needed a system which could be relied upon to run 24-7 non-stop for the next few decades. This was reflected in the URS (User Requirement Specification), which demanded a large degree of redundancy in the SCADA system.

To meet these requirements, Astec designed a fully backed-up system with incredible reliability. In the unlikely event of multiple component failures, the modular structure allows for easy replacement. The system runs unaffected, while spares are ordered and installed to avoid/minimise downtime. System Engineer Phil Butler explained how Astec created 'host' and 'guest' systems which mirror each other to provide backup.

''Even if a major part of the system fails, the levels of built in resilience will allow the process to continue while the failed parts are replaced. While HMI screens will automatically operate against the active components, operators will be made aware of a failure via alarms to enable them to obtain further assistance. This level of resilience provides time for the local engineering team to resolve a problem or call in additional support from Astec or a component product vendor''

Outcome

Astec worked in partnership to achieve the highest standards for the client. This project involved highly detailed design process constraints and validation - which came from Albumedix's demanding quality standards. Working through this involved a high level of commitment and communication on both sides. Successful completion of this project, even at design stage only, was a significant accomplishment.

The Astec team demonstrated their commitment to meeting client needs throughout the project. Face-to- face meetings were held at on-site every week, dealing with many staff in varying roles at all seniority levels, to take every aspect and viewpoint into consideration. With commissioning being completed earlier than planned, the project is currently in its final stages of acid sanitisation before being handed over to Albumedix to restart production.

Background

Astec Solutions uses best in class industrial software to deliver Smart Manufacturing Solutions into manufacturing and other industrial sectors.

The core capabilities of the business include provision of Industrial IoT, MES/MOM, SCADA, Batch Execution, Workflow and reporting solutions, supplemented by a dedicated support desk and field service team. Astec works seamlessly with clients' Engineering and IT departments to ensure all monitoring, control, visualisation and analytical systems make best use of existing infrastructure investments – while providing simple, effective and highly available solutions which can be used for many years.

Further Information

For further information relating to this case study please contact:-

+44 1543 888134
enquiries@astecsolutions.com

Edric House, Towers Plaza, Wheelhouse Road, Rugeley WS15 1UW United Kingdom
Registered UK Company: 4062330 (VAT: GB754536318)